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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,502	03/31/2004	Robert P. Meagley	42P18250	8625

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

LEE, SIN J

ART UNIT PAPER NUMBER

1752

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/816,502

Applicant(s)

MEAGLEY, ROBERT P.

Examiner

Sin J. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-21 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-30 is/are allowed.
- 6) ☒ Claim(s) 1 and 9-21 is/are rejected.
- 7) ☒ Claim(s) 2-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6-27-05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant canceled claims 8 and 22-24.
2. In view of the amendment of June 27, 2005, previous 102(e) rejection on claims 1, 2, 4, 5, 7 and 22-24 over Franken et al '934 is hereby withdrawn.
3. Due to newly cited prior arts, the following rejections are made non-final.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the EUV photoresist" in line 1. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites that the composition of claim 9 further comprises reaction products of the composition. Applicant is trying to claim the composition (an intermediate product) *and* the reaction product (a final product) of the composition at the same time, which is not allowed. Appropriate correction is required.

7. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites the limitation "the additive" in line 1. There is insufficient antecedent basis for this limitation in the claim.

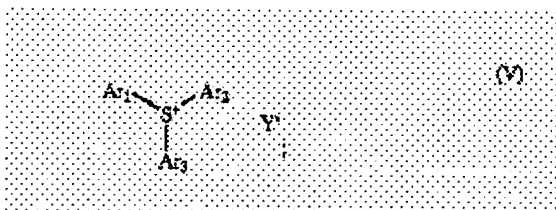
Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 9 and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolb et al (US 2005/0059543 A1) in view of Ho et al (US 2005/0106493 A1).

Kolb teaches ([0019]-[0029]) a polymerizable medium, which comprises (a) a sulfonium salt of the following formula



in which the examples for Y⁻ include *carboranes*; (b) a photosensitizer, which in combination with the sulfonium salt produces acid in response to visible light and (c) at least one monomer or oligomer which is capable of undergoing cationic polymerization initiated by the acid. Kolb states ([0033]) that his sulfonium salt photoacid generators can be photosensitized to achieve rapid polymerization of one or more cationic

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monomers, oligomers, or polymers. Based on Kolb's teaching, it would have been obvious to one skilled in the art to have carboranes as Y⁻ in Kolb's sulfonium photoacid generators with a reasonable expectation of obtaining a triarylsulfonium salt photoacid generators, which are thermally stable and can be activated by long wavelength UV or visible light.

Although Kolb does not explicitly mention the use of a quencher, it is known in the art to use a quencher when using a photoacid generator in order to control acid diffusion in the exposed film, as evidenced by Ho, [0008]. Therefore, it would have been obvious to one skilled in the art to use a quencher together with Kolb's sulfonium photoacid generator in order to control acid diffusion as taught by Ho.

Kolb also teaches that his polymerizable medium can contain 10 parts binder and 90 parts monomer or oligomer and that the medium comprises between about 0.005% and about 0.5% by weight sensitizer, and between about 1.0% and about 10.0% by weight sulfonium salt (see [0071]). Those ranges taught by Kolb overlap with present ranges and thus render present ranges prima facie obvious. In the case "where the [claimed] ranges overlap or lie inside ranges disclosed by the prior art," a prima facie case of obviousness would exist which may be overcome by a showing of unexpected results, In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Therefore, Kolb in view of Ho would render obvious present inventions of claims 9 and 14-21 (Kolb's photosensitizer teaches present additive).

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10. Claims 1, 9-12, and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al (US 6,204,350 B1) in view of Ho et al (US 2005/0106493 A1).

Liu teaches a moisture-curable composition comprising at least one compound having reactive silane functionality or groups and an *acid generating material*, which releases an acid upon exposure to heat, *UV light*, visible light, electron beam irradiation or microwave irradiation to initiate and accelerate the crosslinking reaction of the silane functional group-containing compound (see abstract and col.4, lines 13-22, lines 48-67, col.5, lines 1-40). Liu furthermore teaches that one or more electroconductivity enhancers (as well as other additives) can be added to his composition in the amount of 0.001 wt%-10wt.% in order to further enhance the electroconductivity of the composition (see col.18, lines 38-61, col.19, lines 20-27). Liu teaches (col.19, lines 28-61) that the electroconductivity enhancers useful in his invention include salts having an organic or inorganic cation and a bulky, carbon-containing, non-coordinating, organophilic anion. As one of the examples for the cation, Liu teaches *diphenyl iodonium*, and as one of the examples for the anion, Liu teaches *carborane*. Based on Liu's teaching, it would have been obvious to one of ordinary skill in the art to use the diphenyliodonium carborane salt as Liu's electroconductivity enhancer with a reasonable expectation of further enhancing the electroconductivity of his composition. Therefore, Liu's teaching renders obvious present photoacid generators of claims 1 and 9.

Although Liu does not explicitly mention the use of a quencher, it is known in the art to use a quencher when using a photoacid generator in order to control acid diffusion

in the exposed film, as evidenced by Ho, [0008]. Therefore, it would have been obvious to one skilled in the art to use a quencher together with Liu's photoacid generator in order to control acid diffusion as taught by Ho. Therefore, Liu in view of Ho would render obvious present inventions of claims 1, 9-12, and 14-21.

Allowable Subject Matter

11. Claims 2-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Liu et al'350 does not teach or suggest present carborane-based groups of claims 2-7.

12. Claims 25-30 are allowed. None of the references cited teaches or suggests present etching step of claim 25.

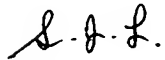
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

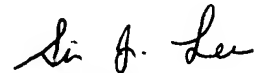
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Lee
September 12, 2005



SIN LEE
PRIMARY EXAMINER